

**Draft Summary of the Engineering and Operations Work Group Meeting  
Oroville Facilities Relicensing (FERC Project No. 2100)  
April 5, 2001**

The Department of Water Resources (DWR) hosted a meeting for the Engineering and Operations Work Group on April 5, 2001 in Oroville.

A summary of the discussion, decisions made, and action-items is provided below. This summary is not intended to be a transcript, analysis of the meeting, or to indicate agreement or disagreement with any of the items summarized, except where expressly stated. The intent is to present a summary of the discussion for information purposes for interested parties who could not attend the meeting.

### **Introduction**

Attendees were welcomed to the Engineering and Operations Work Group meeting. Ralph Torres of DWR was introduced as the Resource Area Manager for the Engineering and Operations Work Group. The meeting objectives were discussed. The Engineering and Operations Work Group meeting agenda and a list of meeting attendees and their affiliations are appended to this summary as Attachments 1 and 2, respectively. Flip chart notes are included as Attachment 3.

### **Action Items – March 1, 2001 Engineering and Operations Work Group Meeting**

A summary of the March 1, 2001 Engineering and Operations Work Group is posted on the relicensing web site. The Facilitator reviewed the status of action items from the March 1, 2001 Engineering and Operations Work Group meeting as follows:

- |                           |  |
|---------------------------|--|
| <b>Action Item #PEO1:</b> | Explain storage operations at Lake Oroville.   |
| Status:                   | A discussion of storage operations at Lake Oroville is included in the meeting agenda.                       |
| <b>Action Item #EO2:</b>  | Explanation of hydropower generation.  |
| Status:                   | A discussion of hydropower generation at the Oroville Facilities is included in this meeting agenda.         |
| <b>Action Item #EO3:</b>  | Provide Work Group with Master Issues list.  |
| Status:                   | Master Issues List distributed to Work Group at this meeting agenda.   |
| <b>Action Item #EO4:</b>  | Real-time facility operations modeling demonstrations.   |
| Status:                   | A discussion of real-time facility operations is included in this meeting agenda.                            |
| <b>Action Item #EO5:</b>  | Provide Work Group with updated Oroville Storage Curves.   |
| Status:                   | A discussion of storage curves for the Oroville Facilities is included in this meeting agenda.               |
| <b>Action Item #EO6:</b>  | Determine ownership of power lines within the project boundary.  |
| Status:                   | A discussion of the ownership of power lines within the project boundary is included in this meeting agenda. |
| <b>Action Item #EO7:</b>  | Provide facilities tour for the Engineering and Operations Work Group.                                       |
| Status:                   | Tour completed on April 4, 2001.   |

### ***Storage Operations & Updated Storage Curves***

John Leahigh of DWR provided the Work Group with information regarding the water allocation process and 2001 Water Supply Outlook for the Oroville Facilities and the State Water Project. He explained that DWR determines the amount of water deliveries and carryover based on the following criteria: (1) water carryover from the previous year; (2) current rain-year precipitation (includes inflow to Oroville and other major reservoirs); (3) regulatory considerations (flood needs, in-stream requirements, and SF-Bay Delta requirements); (4) local water supply requirements (Feather River Service Area Users); and (5) carryover requirements for the next season (calculated by formula). John explained that given below normal rainfall for this season, the SWP would be delivering about 30% of requested water allocations. He added that local water rights agreement commitments would be fully met. His presentation is appended to this summary as Attachment 4.

- ♦ Ken Kules of MWD asked if the carryover for next year would follow the formula, i.e., projected carryover would be 1.21MAF, based on 1.42 MAF projected storage in September. John responded that DWR typically allocates carryover based on a conservative projection of dry conditions. In the past, that has meant that actual carryover is higher than the projection. He added that it would take several dry years in succession to drop actual carryover to projected carryover. Last year's carryover target was 1.7 MAF, and the actual carryover was 1.9 MAF. John mentioned that DWR is developing real-time monitoring capabilities in order to more accurately estimate water in-flows to the system and project carryover capacities.
- ♦ One participant asked what the maximum water delivery allocations were for the project. John responded that the maximum project water delivery was approximately 3.5 MAF, but the average delivery was closer to 3 MAF. He added that to deliver the maximum allocation of 4.2 MAF, there would have to be higher than normal precipitation. Finally, John said that deliveries and releases at the facility were based on hydrology and in-stream flows, not demand, except for SF-Bay Delta requirements.
- ♦ A request was made to put updated storage projections on the relicensing web site. DWR agreed to consider the request.

#### *Explanation of Power Generation*

A handout describing how power is generated by falling water was distributed to the Work Group. The handout is appended to this summary as Attachment 5.

#### *Power Line Ownership*

Wayne Dyok of the consulting team provided information regarding power line ownership within the project boundary. He pointed out the Initial Information Package (IIP) states there are no power lines within the FERC project boundary. This information was taken from the original license, which did not include power lines. There have been a number of power lines proposed and withdrawn as part of the project when capacity has either been added or modified. At this time, the power lines within the project boundary are owned by DWR and maintained by PG &E. An errata sheet to the IIP will be developed indicating the current status of power line ownership at the Oroville Facilities.

#### *Site Tour*

Approximately twenty Engineering and Operations Work Group participants took a half-day tour of the Oroville Facilities on Wednesday, April 4, 2001. The tour included visits to the dam and powerhouse, fish hatchery, and locations at the Forebay and Afterbay. The tour was very informative, and DWR indicated future tours are available for other groups upon requested.

#### *Master Issues List*

The Master Issues List for Engineering and Operations was distributed to the Work Group. The Engineering and Operations Group was informed there were several issues that affects the Environmental Work Group, and that this group would provide the Environmental Work Group with information on these issues as required. The Master List is appended to this summary as Attachment 6.

#### **Revisions to Issue Statements**

At the last Engineering and Operations Work Group meeting the consulting team was tasked with developing issue statements based on engineering and operations issues and interests identified by all sources to date. The Engineering and Operations Work Group received a copy of the draft

issue statements, including examples of the issues and interests used to develop each statement. The draft issue statements are appended to this summary as Attachment 7.

Wayne Dyok described the Issue Statements as an integral part of the scoping document (required by NEPA) that drive the process from the Work Groups issues and interests to an operations plan, and ultimately to a settlement agreement. Issue statements begin the process of determining information needed during the study phase of the relicensing effort.

Wayne also discussed issues that were not included in the draft issue statements and had been deferred to the Environmental Work Group for their consideration.

A complete list of comments on issue statements can be found as part of the Flip-Chart notes in Attachment 3.

## **Operations Modeling**

### *Overview*

Curtis Creel of DWR provided the Engineering and Operations Work Group with an overview of computer-generated models and their application to the relicensing process. He explained that a model is a mathematical representation of the relationships among components of a real system. Models are used to evaluate a system's response to data such as a given hydrologic input, operational criteria and any proposed actions to evaluate alternate scenarios. Systems operators use models as one of many decision-making tools. He stressed that models cannot cover the overall complexities of a system, and by definition a model is a simplified representation of a system. Finally, he reminded the Work Group that models are only as good as the information they are based on.

Operations models will be used as part of the relicensing effort to analyze various operating scenarios developed by the Engineering and Operations Work Group. The operating scenarios will be based on proposals developed by the other Work Groups as well. DWR is considering developing a modeling support group comprised of various experts for the relicensing effort.

### *Vista Software*

Dick Griffith of Acres International provided the Engineering and Operations Work Group with an overview of an operations model developed by Vista Software. He described the model as a computer tool that uses forecasting, optimization and simulation to find cost-effective solutions for operations and studies. Vista data requirements include real-time data, current weather forecasts, flow constraints, past hydrologic information, system facilities descriptions, the value of generation and transmission costs, and load information to provide potential operations scenarios. He added that the Vista model could interface with FWS IFIM system and provide the real-time projections discussed by the Engineering and Operations Work Group. The presentation is appended to this summary as Attachment 8.

### *CALSIM Water Resources Simulation Model*

Sushil Arora provided the Engineering and Operations Work Group with an overview of the CALSIM operations model developed by DWR. He explained that CALSIM simulates operations of the SWP and the federal Central Valley Project, including the Sacramento River, San Joaquin River, and SF-Bay Delta systems. He added that the model accounts for system operations objectives, physical constraints, legal and institutional agreements and/or other statutes.

- The Engineering and Operations Work Group wanted to know CALSIM's ability to provide specific information regarding the Oroville facilities. Sushil responded that the model could be modified to provide more specific information about Oroville. He added that for the relicensing

effort, CALSIM might be used to provide “big picture” information and another compatible model might be used to model issues specific to relicensing.

- Curtis Creel informed the group that DWR was looking into developing a more responsive (real time) predictive model based on information provided by the National Weather Service.

The CALSIM modeling presentation is appended to this Summary as Attachment 9. Information regarding the CALSIM model is available on the Internet at: <http://modeling.water.ca.gov>.

### **Development of Issue Sheets**

The Facilitator and Wayne Dyok lead Engineering and Operations Work Group participants in a discussion regarding the development of issue sheets. Once issue statements are crafted for inclusion in the Scoping Document, Engineering and Operations Work Group participants will prepare an issue sheet for each statement that will include identification of goals, information available, additional study needs relative to that issue and a determination of the study scope. Each issue sheet will be instrumental in developing the study plans.

The Engineering and Operations Work Group agreed that developing a complete list of issue statements for the scoping document was the primary focus for the next meeting. However, they also agreed that developing the issue sheets was important to begin efforts to decide how to proceed toward development of the study plans. Wayne agreed to develop draft issue sheets for two of the issue statements for review by the Engineering and Operations Work Group at the next meeting.

### **Next Meeting**

The Engineering and Operations Work Group agreed to meet on:

Date: Thursday, April 26, 2001 and May 25, 2001  
Time: 9:30 a.m. to 3:00 p.m.  
Location: April 26<sup>th</sup> meeting to be held at Eagles Hall; May 25<sup>th</sup> meeting location to be determined.

### **Agreements Made**

1. The Work Group agreed to review revised issue statements developed by the consulting team at the next meeting.
- 2.
3. The Work Group agreed to meet again on April 26, 2001 from 9:30 a.m. to 3:00 p.m. (location to be announced).

### **Action Items**

The following list of action items identified by the Engineering and Operations Work Group includes a description of the action, the participant responsible for the action, and item status.

**Action Item #EO8:** DWR staff to investigate posting storage projections on the project web site.  
**Responsible:** DWR Staff  
**Due Date:** April 26, 2001

**Action Item #EO9:** Lake Oroville sedimentation update – information from past studies.  
**Responsible:** DWR Staff  
**Due Date:** April 26, 2001

- Action Item #EO10:** Provide brief explanation of power operations related to power generation and use within State Water Project, relationship to State Water Contractors.  
**Responsible:** DWR Staff  
**Due Date:** April 26, 2001
- Action Item #EO11:** Make sure FERC's latest review of the project is in project library (Part 12).  
**Responsible:** DWR Staff  
**Due Date:** April 26, 2001
- Action Item #EO12:** Revise Issue Statements and circulate to Work Group.  
**Responsible:** Consulting Team  
**Due Date:** April 20, 2001
- Action Item #EO13:** Develop draft Issue Sheets for two issue statements for Work Group review and discussion at their next meeting.  
**Responsible:** Consulting Team  
**Due Date:** April 20, 2001

**Engineering and Operations Work Group Meeting Agenda  
Oroville Facilities Relicensing (FERC Project No. 2100)  
April 5, 2001**

**Agenda**

Desired Outcomes

- ♦ *Update on Action Items*
- ♦ *Introduction to Modeling for Hydropower Operations*
- ♦ *Report from Consulting Team on Further Issue Statements Development, Revisions, and Concurrence with Recommendations*
- ♦ *Understanding of Issue Sheet Development*
- ♦ *Action Items and Next Steps*

- 1. Welcome, Opening Remarks, Introductions**
- 2. March 1, 2001 Meeting Summary and Action Items**
- 3. Revisions to Issue Statements**
- 4. Operations Modeling**
  - ♦ **Overview**
  - ♦ **Acres Model**
  - ♦ **CALSIM Model**
- 5. Introduction of Issue Sheets Development**
- 6. Action Items and Next Steps**

**Engineering and Operations Work Group Meeting Attendees  
Oroville Facilities Relicensing (FERC Project No. 2100)**

Arthur Hinojosa	Department of Water Resources
Bill Harper	Lime Saddle Marina
Bill Smith	SWRI
Clay Booker	Department of Water Resources
Craig T. Jones	State Water Contractors
Curtis Creel	Department of Water Resources
D.C. Jones	Resident
Dave Ferguson	Department of Water Resources
David Whitewolf	Cherokee Tribal Council/NANRC111
Dick Griffith	Acres
Don Marquez	Kern County Water Agency
Ed Craddock	Butte County
Erik Reyes	Department of Water Resources
Floyd Higgins	Oroville Model Airplane Club
Frank Caunt	Butte Water Commission
Jerry Antonetti	Resident
Jerry Boles	Department of Water Resources
John Lance	Department of Water Resources
Ken Kules	Metropolitan Water District of Southern California
Laurine White	U.S. Army Corps of Engineers
Lori Brown	Department of Water Resources
Mary Keller	Sutter County
Mike Glaze	Oroville Wyandotte
Mike Vrooman	Resident on Feather River
Mohammed Musazay	Department of Water Resources
Nan Nalder	Acres International
Rashid Ahmad	Department of Water Resources
Ray Gannett	Bidwell Marina
Ralph Svetich	Department of Water Resources
Ralph Torres	Department of Water Resources
Rick Ramirez	Department of Water Resources
Roger Masuda	Butte County
Ron Davis	Resident
Steve Oaken	Yuba County Water Agency
Sushil Arora	Department of Water Resources
Teresa Sutliff	Department of Water Resources
Terry Erlewine	State Water Contractors
Tom Glover	Department of Water Resources, Oroville Field Division
Wayne Dyok	Harza/EDAW

## Notes from Flip Charts Oroville Facilities Relicensing (FERC Project No. 2100)

The following list was recorded on flip charts during the Engineering and Operations Work Group Meeting. The flip chart listing is not intended to be a transcript or analysis of the meeting or to indicate agreement or disagreement with the items listed; the intent is to provide a summary for informational purposes for interested parties who could not attend the meeting.

### Issue Statement Revisions

1. Add spinning reserve e.g. motoring
2. Evaluate the potential to... (make statements consistent relative to action)
3. Add modeling as tool – relate to #2 (e.g. siltation) could be added to #4 or kept independent. Make distinction between ‘siltation and sedimentation’.  
Lake elevation and recreation should be highlighted.  
Access to north side of dam may be needed.
8. (Provide details re: power generation / use related to project operations)
10. Add Bidwell Cove (same situation). Move to Recreation Work Group for consideration of interim project.
11. Include “all other alternatives to meet various downstream temperature requirements” after Lake Oroville, a “afterbay, hatchery, low flow section”.
13. Add MTBE
14. Evaluate operation alternatives that maintain or improve current water supply under all operation plans and conditions.

### Issues not included

4. Incorporate #4 into modeling issue statement.
  31. (Environmental Work Group)
  34. (Environmental Work Group)
  35. (Environmental Work Group)
  38. (Environmental Work Group)
  39. (Environmental Work Group) and #3
  40. (Environmental Work Group)
- Reservoir operation to consider future values of power (as opposed to water supply values).
  - Concession at Lime Saddle has been without contract – need assistance from Department of Water Resources to facilitate resolution of issue. (PG & E property involved)

### Issue Statement

- Resource Goals
- Information available.
- Information needed.
- Geographic Scope.
- Level of Effort.

### Action Items

- Consider posting storage projections.
- Sedimentation update – past studies.
- Provide brief explanation of power operations related to power generation and use within State Water Project, relationship to State Water Contractors (Rick and Craig will talk with Roger).
- Make sure FERC's latest review of project is in library (part12).
- Revise Issue Statement and circulate to group.



- April 26
- May 25
- Considering modeling Task Force.

**Hydro Web Sites**

- <http://www.fwee.org>
- <http://www.hydro.org/hydrofacts>
- <http://www.inel.gov/national/hydropower/more>